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EXAMINER	
KOCH, GEORGE R	

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1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,878	MANTYLA, MARKKU	
	Examiner	Art Unit	
	George R. Koch III	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 21, 22, 27-31, 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann (US 6,248,174) in view of Griech (US 6,521,089)

As to claim 21, Kustermann discloses a method of measuring the amount of a coating on a paper web (Kustermann is directed towards control of the quantity of coating, i.e., the amount - see background of the invention section), the method comprising measuring the amount of at least one component of the coating on the paper web (via sensor 46 - see column 4, lines 32-67), measuring the composition of the coating to be transferred to the paper web (see column 5, lines 9-12, which discloses a coating medium sensor 52 which gives information about the composition and especially the solid substance coating medium 14 in the coating medium supply 30; see also flow metering measuring devices 62, column 5, lines 36-59, which discloses that the meters allow for a determination of the solid substance content of the coating medium), and determining the amount of the coating on the paper web on the basis of the amount of at least one component of the coating on the paper web and the composition of the coating to be transferred to the paper web (see columns 4-6 in general, and especially column 5, lines 55-57, which discloses that the "Control unit 42 may determine from this the flow quantity of the coating layer 14a", and Figure 1 shows that coating layer 14a is on the web).

As noted in the prior action, Kusterman operates by monitoring flow quantity. Kustermann does not suggest measuring a component on the paper web, or the ratio of two of more components in the coating on the paper web.

However, Griech suggests measuring a component of the paper web (via basis weight sensor 7) and measuring a composition of a coating to be transferred to the paper web (via concentration sensor 10), and using that to adjust an amount of at least one component (supply line 15) and a ratio of two or more components (supply lines 15 and 16) in the coating to be transferred to form the web. Griech also discloses control structure and operations to perform this - see columns 7-9, the operation of the control circuit I and control circuit II. Griech discloses that this control ensures quality of the concentration even in the event of sudden reduction (see column 8, lines 40-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such measurements and adjustments in order to ensure quality.

As to claim 22, Kustermann discloses further adjusting the amount of the coating on the paper web on the basis of the measurement of the amount of the coating on the paper web (see column 5, lines 16-35, which discloses adjusting the amount of coating by sliding elements 38 and affiliated actuators 40).

As to claim 27 and 29, Kustermann discloses that the amount of at least one component of the coating on the paper web is measured continuously (see, for example, column 4, line 62 talks about differential signals and column 2 talks about setting the signals to change slowly, which suggests continuous signals that vary infrequently).

As to claim 28, Kustermann discloses monitoring the coating, and discloses that the coating is paint (see column 4, lines 2 and 3). Thus, Kustermann monitors the pigment since it is monitoring the paint.

As to claim 30, Kustermann also discloses an apparatus (Figure 1) for measuring the amount of a coating on a paper web, the apparatus comprising a first measuring device arranged to measure the amount of at least one component in the coating on the paper web by reflection measurement (via sensor 46 - see column 4, lines 32-67), a second measuring device arranged to measure the composition of the coating to be transferred to the paper web (see column 5, lines 9-12, which discloses a coating medium sensor 52 which gives information about the composition and especially the solid substance coating medium 14 in the coating medium supply 30; see also flow metering measuring devices 62, column 5, lines 36-59, which discloses that the meters allow for a determination of the solid substance content of the coating medium), and a data processing device (control unit 42 - see column 5, line 4) arranged to determine the amount of the coating on the paper web on the basis of the amount of at least one component of the coating on the paper web and the composition of the coating to be transferred to the paper web (see operations in column 4 and 5).

As noted in the prior action, Kusterman operates by monitoring flow quantity. Kustermann does not suggest a measuring device for measuring a component on the paper web, or the ratio of two of more components in the coating on the paper web. However, Griech suggests a second measuring device for measuring a component of the paper web (via basis weight sensor 7) and measuring a composition of a coating to be transferred to the paper web (via concentration sensor 10), and using that to adjust an amount of at least one component

(supply line 15) and a ratio of two or more components (supply lines 15 and 16) in the coating to be transferred to form the web. Griech also discloses control structure and operations to perform this - see columns 7-9, the operation of the control circuit I and control circuit II. Griech discloses that this control ensures quality of the concentration even in the event of sudden reduction (see column 8, lines 40-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such measurements and adjustments in order to ensure quality.

As to claim 31, Kustermann discloses that the apparatus further comprises a control device (sliding elements 38 and actuators 40) arranged to adjust the amount of the coating on the paper web on the basis of the measurement of the amount of the coating on the paper web (see column 5, lines 16-35).

As to claim 36 and 38, Kustermann discloses that the amount of at least one component of the coating on the paper web is measured continuously (see, for example, column 4, line 62 talks about differential signals and column 2 talks about setting the signals to change slowly, which suggests continuous signals that vary infrequently).

As to claim 37, Kustermann discloses monitoring the coating, and discloses that the coating is paint (see column 4, lines 2 and 3). Thus, Kustermann monitors the pigment since it is monitoring the paint.

As to claim 39 and 40, Kustermann discloses placing this second measuring device is in a coating reservoir in a coating head (such as sensors 62 and 64), and/or in a reservoir (such as material supply 30 with composition sensor 52).

As to claim 39 and 40, Kustermann as incorporated discloses placing this second measuring device is in a coating reservoir in a coating head (such as sensors 62 and 64), and/or in a reservoir (such as material supply 30 with composition sensor 52). Furthermore, the additional locations (such as in a mixer, or a feed line, or a separate sample line, or transfer lines, storage tanks, etc) are considered to be obvious alternative positions to place the sensor of Kustermann.

3. Claims 23, 24, 25, 28, 32, 33, 34, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kustermann (US 6,248,174) and Griech (US 6,521,089) as applied above and further in view of Belotserkovsky (US 6,183,561).

As to claim 23 and 32, Kusterman does not disclose that the amount of at least one component of the coating on the paper web is measured by reflection measurement or that the first measuring device is arranged to measure the amount of at least one component of the coating on the paper web by reflection measurement.

However, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is measured by a measuring device that uses reflection measurement (see Figure 2, which shows a sensor that operates by reflection, and column 6, lines 49-51, which recite a "reflectance-type infrared sensor". See also column 7, line 45 to column 8, line 32, and see in general column 6 through 10 for discussion of the sensor operation). Belotserkovsky uses these reflectance sensors in order to obtain accurate measurement of multiple parameters (see column 7, lines 27-32). Therefore, it would have been obvious to one of ordinary skill in the art

at the time of the invention to have utilized such sensors and measurements of the composition of the coating in order to ensure accuracy in measurement of the parameters.

Similarly, as to claim 24 and 33, Belotserkovsky as incorporated discloses that the amount of at least one component of the coating on the paper web is measured by a sensor that is reflection measurement based on infrared technique (see column 6, lines 49-51, which recite a "reflectance-type infrared sensor".)

As to claim 25 and 34, Kustermann discloses monitoring the composition of the coating (see above), but does not suggest the technique. Belotserkovsky as incorporated suggests an infrared technique for monitoring the coating after it has been applied. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the specific technique of Belotserkovsky to the desired sensor of Kustermann, in order to achieve the function of Kustermann.

As to claim 28 and 37, Kustermann can be interpreted as being silent as to monitoring the amount of pigment, although it clearly monitors the paint. However, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is the amount of a pigment in the coating on the paper web (see column 7, lines 45-65, which discloses pigments such as CaCO3, latex, clay; see also column 1, lines 24-39, which discloses that clay and CaCO3 are pigments). Belotserkovsky discloses that it is critical to monitor these pigments in order to achieve as uniform a coating as possible (column 1, lines 55-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a step or sensor for monitoring pigments in order to ensure as uniform a coating as possible.

4. Claims 21-24, 26-34, and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belotserkovsky (US 6,183,561), Griech (US 6,521,089) and Kustermann (US 6,248,174).

As to claim 21, Belotserkovsky discloses a method of measuring the amount of a coating on a paper web, the method comprising measuring the amount of at least one component of the coating on the paper web (by sensor 32), measuring the composition of *the web* prior to the coating of the paper web (by sensor 23), and determining the amount of the coating on the paper web on the basis of the amount of at least one component of the coating on the paper web and the composition of the coating to be transferred to the paper web.

Belotserkovsky does not disclose measuring the *composition* of the coating to be transferred to the paper web. Belotserkovsky does not suggest measuring a component on the paper web, or the ratio of two of more components in the coating on the paper web.

However, Griech suggests, in the context of a system measuring a component of the paper web (via basis weight sensor 7) the step measuring a composition of a coating to be transferred to the paper web (via concentration sensor 10), and using that to adjust an amount of at least one component (supply line 15) and a ratio of two or more components (supply lines 15 and 16) in the coating to be transferred to form the web. Griech also discloses control structure and operations to perform this - see columns 7-9, the operation of the control circuit I and control circuit II. Griech discloses that this control ensures quality of the concentration even in the event of sudden reduction (see column 8, lines 40-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such measurements and adjustments in order to ensure quality.

Additioanlly, Kustermann discloses that it is known to monitor and control paper web coating (see abstract, which recites paper or cardboard) by three measurements. Kustermann utilizes a measurement of the web at the pre and post coating locations (see Figure 1, items 44 and 46, and column 4, lines 46-52). Kustermann also discloses a measurement of the mass, composition or volume flow of the coating to be transferred (see column 5, lines 9-12, which discloses a coating medium sensor 52 which gives information about the composition and especially the solid substance coating medium 14 in the coating medium supply 30; and see also column 5, lines 55-59, which discloses that the control unit can determine the solid substance content of the coating medium from this measurement). Thus, these measurement are a measurement of the composition of the coating to be transferred to the paper web. Kustermann further discloses that these additional measurements increase the accuracy of the flow quantity registration by comparing various flow quantity signals (see column 5, lines 60-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such extra sensors and measurements of the composition of the coating in order to ensure accuracy in toe flow quantity of the coating.

As to claim 22, Belotserkovsky discloses further adjusting the amount of the coating on the paper web on the basis of the measurement of the amount of the coating on the paper web (see column 6, lines 28-51, especially actuators 26, and see column 6-10 in general for the control operation)

As to claim 23, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is measured by reflection measurement (see Figure 2, which shows a

sensor that operates by reflection, and column 6, lines 49-51, which recite a "reflectance-type infrared sensor". See also column 7, line 45 to column 8, line 32, and see in general column 6 through 10 for discussion of the sensor operation).

As to claim 24, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is measured by reflection measurement based on infrared technique (see column 6, lines 49-51, which recite a "reflectance-type infrared sensor".)

As to claim 25, Kustermann discloses monitoring the composition of the coating (see above), but does not suggest the technique. Belotserkovsky suggests an infrared technique for monitoring the coating after it has been applied. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the specific technique of Belotserkovsky to the desired sensor of Kustermann, in order to achieve the function of Kustermann.

As to claim 27 and 29, Belotserkovsky and Kustermann discloses that the amount of at least one component of the coating on the paper web is measured continuously (in Belotserkovsky, see column 6, lines 52-56, which discloses that the sensor is driven back and forth to make measurements over each slice portion, which is another way of saying continuous measurement; in Kustermann, see, for example, column 4, line 62 talks about differential signals and column 2 talks about setting the signals to change slowly, which suggests continuous signals that vary infrequently).

As to claim 28, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is the amount of a pigment in the coating on the paper web (see column

7, lines 45-65, which discloses pigments such as CaCO3, latex, clay; see also column 1, lines 24-39, which discloses that clay and CaCO3 are pigments).

As to claim 30, Belotserkovsky discloses an apparatus for measuring the amount of a coating on a paper web, the apparatus comprising a first measuring device arranged to measure the amount of at least one component in the coating on the paper web by reflection measurement, a second measuring device arranged to measure the composition of the coating to be transferred to the paper web, and a data processing device arranged to determine the amount of the coating on the paper web on the basis of the amount of at least one component of the coating on the paper web and the composition of the coating to be transferred to the paper web.

Belotserkovsky does not disclose a second measuring device arranged to measure the *composition* of the coating to be transferred to the paper web. Belotserkovsky does not suggest a measuring device for measuring a component on the paper web, or the ratio of two of more components in the coating on the paper web.

However, Griech suggests a second measuring device for measuring a component of the paper web (via basis weight sensor 7) and measuring a composition of a coating to be transferred to the paper web (via concentration sensor 10), and using that to adjust an amount of at least one component (supply line 15) and a ratio of two or more components (supply lines 15 and 16) in the coating to be transferred to form the web. Griech also discloses control structure and operations to perform this - see columns 7-9, the operation of the control circuit I and control circuit II. Griech discloses that this control ensures quality of the concentration even in the event of sudden reduction (see column 8, lines 40-52). Therefore, it would have been obvious to one

of ordinary skill in the art at the time of the invention to have utilized such measurements and adjustments in order to ensure quality.

Additioanlly, Kustermann discloses that it is known to use a measuring device monitor and control paper web coating (see abstract, which recites paper or cardboard) by multiple measurements. Kustermann utilizes a measurement of the web at the pre and post coating locations (see Figure 1, items 44 and 46, and column 4, lines 46-52). Kustermann also discloses a measurement of the mass, composition or volume flow of the coating to be transferred (see column 5, lines 9-12, which discloses a coating medium sensor 52 which gives information about the composition and especially the solid substance coating medium 14 in the coating medium supply 30; and see also column 5, lines 55-59, which discloses that the control unit can determine the solid substance content of the coating medium from this measurement). Thus, these measurement are a measurement of the composition of the coating to be transferred to the paper web. Kustermann further discloses that these additional measurements increase the accuracy of the flow quantity registration by comparing various flow quantity signals (see column 5, lines 60-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such extra sensors and measurements of the composition of the coating in order to ensure accuracy in toe flow quantity of the coating.

As to claim 31, Belotserkovsky discloses a control device (actuators 26) for adjusting the amount of the coating on the paper web on the basis of the measurement of the amount of the coating on the paper web (see column 6, lines 28-51, especially actuators 26, and see column 6-10 in general for the control operation)

As to claim 32, Belotserkovsky discloses a first measuring device that is arranged to determine the amount of at least one component of the coating on the paper web is measured by reflection measurement (see Figure 2, which shows a sensor that operates by reflection, and column 6, lines 49-51, which recite a "reflectance-type infrared sensor". See also column 7, line 45 to column 8, line 32, and see in general column 6 through 10 for discussion of the sensor operation).

As to claim 33, Belotserkovsky discloses a first measuring device that is arranged to determine the amount of at least one component of the coating on the paper web is measured by reflection measurement based on infrared technique (see column 6, lines 49-51, which recite a "reflectance-type infrared sensor".)

As to claim 34, Kustermann discloses monitoring the composition of the coating (see above), but does not suggest the technique. Belotserkovsky suggests an infrared technique for monitoring the coating after it has been applied. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the specific technique of Belotserkovsky to the desired sensor of Kustermann, in order to achieve the function of Kustermann.

As to claim 36 and 38, Belotserkovsky and Kustermann discloses that the amount of at least one component of the coating on the paper web is measured continuously (in Belotserkovsky, see column 6, lines 52-56, which discloses that the sensor is driven back and forth to make measurements over each slice portion, which is another way of saying continuous measurement; in Kustermann, see, for example, column 4, line 62 talks about differential signals

and column 2 talks about setting the signals to change slowly, which suggests continuous signals that vary infrequently).

As to claim 37, Belotserkovsky discloses that the amount of at least one component of the coating on the paper web is the amount of a pigment in the coating on the paper web (see column 7, lines 45-65, which discloses pigments such as CaCO3, latex, clay; see also column 1, lines 24-39, which discloses that clay and CaCO3 are pigments).

As to claim 39 and 40, Kustermann as incorporated discloses placing this second measuring device is in a coating reservoir in a coating head (such as sensors 62 and 64), and/or in a reservoir (such as material supply 30 with composition sensor 52). Furthermore, the additional locations (such as in a mixer, or a feed line, or a separate sample line, or transfer lines, storage tanks, etc) are considered to be obvious alternative positions to place the sensor of Kustermann.

5. Claims 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Kustermann and Griech or Belotserkovsky, Griech and Kustermann, as applied to claims 21 and 30 above, and further in view of Workman (US 6,452,679).

Kustermann and Belotserkovsky generally suggest various reflectance or transmission sensing systems and methods, such as infrared reflectance techniques. Kustermann and Belotserkovsky are silent as to Raman spectroscopy.

However, Workman discloses that it is known to use both infrared and raman spectroscopy techniques in monitoring the composition of a coating that is applied to a web. Furthermore, it would be obvious to apply the techniques either to the web or the coating

material. Workman suggests that each technique delivers different information as to the components of the web, and that multiple sensors improve detection (see columns 5 and 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such raman spectroscopy techniques in order to improve detection.

Response to Arguments

6. Applicant's arguments with respect to claim 21-40, as they are amended, have been considered but are moot in view of the new ground(s) of rejection. Griech has been applied to address the new limitations.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can also be reached by E-mail at george.koch@uspto.gov in accordance with MPEP 502.03. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George R. Koch III
Primary Examiner

Art Unit 1734

GRK
12/10/2007